FARELLA BRAUN + MARTEL LLP
Attorneys At Law

Russ Building / 235 Montgomery Street
San Francisco / CA 94104

T 415.954.4400 / F 415.954.4480
www.fbm.com

PAUL P. "SKIP" SPAULDING, III
sspaulding@fbm.com
D 415.954.4918

February 24, 2014

Via E-mail and Overnight Delivery

Gene Davis and Sue McConnell
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, California 95670

Re: Proposed Amendment to the Water Quality Control Plan to Provide a Regulatory Framework for the Closure of Mining Waste Management Units at the Royal Mountain King Mine Site, Calaveras County

Dear Mr. Davis and Ms. McConnell:

We submit these comments on behalf of Meridian Beartrack Company ("Meridian"), the current owner of the Royal Mountain King Mine Site ("RMKM Site"), which is the location of a former gold mine in Calaveras County, California. These comments relate to the *Proposed Amendment to the Water Quality Control Plan to Provide a Regulatory Framework for the Closure of Mining Waste Management Units at the Royal Mountain King Mine Site* ("Proposed Amendment"), which is designed to facilitate closure of the RMKM Site in conformance with law. This letter contains the composite comments from Meridian staff, this law firm and SLR International Corporation (formerly Strategic Engineering and Science, Inc. or "SES") in response to the Victor Izzo comments submitted on January 9, 2014.[1]

Meridian hereby submits three documents. The first is this comment letter. The second is an Appendix (two volumes) that contains the key technical materials referred to in this comment letter. The third is a February 24, 2014 letter from Meridian's President, Adam Whitman, in response to the responsible party question in Section II(C) herein. All three documents are submitted for inclusion in the administrative record for this proceeding.

I.

INTRODUCTION

These comments are submitted to the Regional Water Quality Control Board for the Central Valley Region ("Regional Board") in response to the January 9, 2014 comment letter (incorrectly dated January 9, 2013), annotated staff report and attached packet of materials from

[1] All of the technical and scientific comments in this letter have been provided by SLR International Corporation.

Victor Izzo regarding the Proposed Amendment (collectively "Izzo Comments").[2] Meridian did not have an opportunity to review and respond to the Izzo Comments prior to the comment deadline because of their submittal at the deadline, so Meridian is providing the responsive comments herein. If Mr. Izzo is allowed an opportunity to address the Regional Board regarding his comments at the upcoming public hearing on the Proposed Amendment, Meridian requests a corresponding opportunity to provide its responsive comments as well.

In his comments, Mr. Izzo makes a wide variety of assertions regarding the RMKM Site, many of which are inaccurate, unsupported by factual data and/or merely his personal views regarding the law and policy framework which he contends should be applicable to the RMKM Site. Although he fails to disclose it in his letter, Mr. Izzo was a Regional Board employee who worked on mining issues for the RMKM Site and he was part of the team that put together and circulated for public comment the Draft Staff Report dated November 2013 for the Proposed Amendment ("Draft Staff Report") that is the subject of his comments. He retired from his staff position approximately two months ago and is now expressing his apparent dissent with certain aspects of the same Draft Staff Report that he participated in producing.

We have divided our response to the Izzo Comments into three sections. The first section addresses three important, cross-cutting subject areas that permeate all parts of the Izzo Comments. The second section covers the seven numbered comments and the proposed remedy set forth in the Izzo Letter. The third section addresses four major topics that are raised by Mr. Izzo in the multiple comments contained in his Annotated Staff Report.

II.

KEY THRESHOLD ISSUES

At the outset, we address three major contentions in the Izzo Comments because they form the faulty foundation for the vast majority of his comments. First, Mr. Izzo has misread the legal and policy aspects of State Board Order No. WQO 2004-0007 relating to the RMKM Site and this error has caused him to make incorrect claims regarding the legal sufficiency of the Proposed Amendment. Second, Mr. Izzo has made dramatic, unsupported and erroneous assertions based on his personal views regarding the viability of the current RMKM Site groundwater management activities. Finally, Mr. Izzo has raised an irrelevant and legally incorrect "red herring" issue regarding the ownership and control of the RMKM Site.

[2] The Izzo Comments are comprised of: (1) the January 9, 2014 comment letter, which is apparently misdated January 9, 2013 ("Izzo Letter"); (2) a copy of the Draft Staff Report for the Proposed Amendment that has been annotated with highlighted comments ("Annotated Staff Report"); (3) a U.S. Securities and Exchange Commission Form 40-F filed on behalf of Yamana Gold Inc.; and (4) the first page only of a December 2012/January 2013 email exchange between Victor Izzo and Amanda Ludlow of Roux Associates, Inc.

A. The Proposed Amendment Complies In All Respects With The Directives In The 2004 State Board Order.

On May 20, 2004, the State Water Resources Control Board ("State Board") adopted an Order in response to a Petition of Review filed by Meridian and others regarding a Cease and Desist Order issued by the Regional Board relating to the RMKM Site, SWRCB Order No. WQO 2004-0007 ("State Board Order"). A copy of this Order is marked as Exhibit "1" in the Appendix. Among other things, the State Board Order vacated the challenged Order and provided directions to both the Regional Board and Meridian regarding suggested approaches for addressing water quality problems and ultimately achieving closure of the RMKM Site. The Draft Staff Report contains many references to the State Board Order.

The Izzo Comments make a series of incorrect assertions relating to what was supposedly intended or required by the State Board Order. These assertions are pivotal to Mr. Izzo's later claims that the Draft Staff Report is allegedly not in compliance with the State Board Order or other applicable legal requirements. In brief, and as explained further below, many of these assertions are simply untrue, are contradicted by the record, or reflect only the author's personal interpretation that does not comply with the true facts.

According to Mr. Izzo, the State Board Order provided only three choices to the Regional Board for achieving site closure: (1) an engineered alternative using wetlands; (2) a basin plan amendment that de-designates both groundwater and surface water beneficial uses; or (3) a groundwater containment zone. Izzo Letter, at 5. Since the approach reflected in the Draft Staff Report supposedly does not fit into one of those three authorized boxes, Mr. Izzo believes that the plan "does not comply with" or "is inconsistent with" the State Board Order and further asserts that Regional Board Staff and Meridian are therefore not in compliance with it. Izzo Letter, at 4 and 5.

However, this view represents a serious misreading of the State Board Order requirements. In fact, this Order does not require that any particular closure process be adopted or specify that one of these three alternatives must be chosen. Rather, the State Board Order broadly "directs Petitioners [including Meridian] to work with the Regional Board to design and implement an alternate approach to addressing the remaining water quality problems associated with RMKM." State Board Order, at 3. The State Board vacated the Regional Board's Cease and Desist Order and Closure WDRs (which had, among other things, prescriptively required the installation of a clay cover on certain waste management units) and directed the Regional Board to "pursue an alternative approach" based on the "flexibility" in the Title 27 regulations that "would allow for reclassification of the overburden disposal sites as Group C wastes and more effective protection of water quality." *Id.*, at 10 and 12. In essence, the State Board Order directs the Regional Board to look beyond narrow and rigid interpretations of, and use the flexibility provided within, the Title 27 regulations.

Section III.E of the State Board Order identified some potential alternative approaches that the Regional Board should consider for the RMKM Site. This part of the Order is entitled

"*Consideration of* Remedial Measures Not Addressed in the Prescriptive Provisions of Title 27 of the California Code of Regulations" (emphasis added). *Id.*, at 13. This section identified the potential use of enhanced and expanded wetlands and riparian areas downgradient of the waste management units as a potential candidate and directed that a plan for these be prepared for consideration by the Regional Board. *Id.*, at 16. The Order also identified a potential alternative approach of amending the Basin Plan to de-designate beneficial uses of surface water and groundwater in certain locations, and it provided legal support for this type of approach. *Id.*, at 16-17. The State Board Order also stated that establishment of a groundwater containment zone "may" be appropriate for the RMKM Site and explained why this approach would be preferable to a "pump and treat" remedy using reverse osmosis that would be "an expensive, energy-intensive remedial measure that would generate a waste brine that may be three to ten times saltier than the extracted groundwater" that would then need to be disposed of and that had "the potential to draw poor quality water into areas of better quality groundwater which would exacerbate pollution problems." *Id.*, at 17.

For purposes of the Izzo Comments, the key thing to notice about the State Board Order is that it did not require the adoption of any particular alternative approach and did not limit the potential alternatives to the specific ones that it discussed. Thus, although the Order did require Meridian to prepare and submit a plan for enhanced wetlands for consideration by the Regional Board, it did not order the Regional Board to adopt that plan. Similarly, in summarizing the basin plan amendment and containment zone concepts, the State Board wrote: "Other alternative approaches that *may* be an appropriate part of long-term resolution of water quality problems in the RMKM area *include* de-designation of beneficial uses and establishment of a groundwater containment zone...." *Id.*, at 22 (emphasis added). The Board's use of "may" indicated that these approaches should be considered (rather than required) and its use of "include" demonstrates that these are examples of possible approaches, rather than a limit on what approaches the Regional Board could consider.

In sum, Section III.E of the State Board Order was primarily a call upon both the Regional Board and Meridian to work cooperatively to develop alternative approaches that would resolve mine closure issues in conformance with applicable law, rather than a State Board instruction that the Regional Board adopt any particular approach. Accordingly, the Order states:

> The Regional Board and the Petitioners have devoted considerable effort to developing an approach to RMKM closure that is consistent with their view of the facts and applicable requirements. Following distribution of the State Board's draft order in April 2002, the parties attempted to negotiate an acceptable resolution, but were unable to do so. In remanding this matter to the Regional Board for further action, *the State Board recognizes that this order does not resolve all potential disputes, but calls upon both parties to work cooperatively in developing a new approach to resolution*

> *of the remaining mine closure issues that is consistent with applicable law and with the findings and conclusions herein. Id.*, at 22 (emphasis added and footnote omitted).

Mr. Izzo ignores these directives in the State Board Order and improperly criticizes the Proposed Amendment because it supposedly varies from the three potential alternatives that the State Board offered for consideration. Thus, for example, Mr. Izzo erroneously asserts that the State Board Order requires that both surface water and groundwater be de-designated and further requires that the Regional Board adopt, and Meridian implement, an enhanced wetlands plan for the RMKM Site.

However, Mr. Izzo's interpretation defies the plain text of the State Board Order. Contrary to Mr. Izzo's personal views, the Proposed Amendment in fact is fully compliant with the State Board Order because it supports a comprehensive approach for closure that is the result of almost a decade of cooperative studies, analyses and discussions. Moreover, it is fully consistent with the flexibility inherent in the applicable law as specified by the State Board Order.

B. The Proposed Amendment Utilizes The Successful Groundwater Management Strategy At The Site.

The Izzo Comments make unsupported and inflammatory assertions regarding the management plan currently being implemented at the RMKM Site. Among other things, Mr. Izzo asserts that the implementation plan is "failing and will continue to fail under this proposed Basin Plan Amendment," that there are "uncontrolled discharges" to surface water at springs (Love Spring and Turtle Pond are cited as examples of this supposed phenomenon), and that there are "water balance issues." Based on his view of what is supposedly occurring on the RMKM Site, Mr. Izzo opposes the adoption of the Proposed Amendment.

Initially, it should be noted that while Mr. Izzo was a Senior Engineering Geologist in the Title 27 and Mining Program for the Regional Board, it appears that his opinions on the Proposed Amendment are based solely on his privately held views. In contrast, the analyses expressed in the Draft Staff Report are based on the collective judgment of the entire Regional Board Staff, and supporting legal staff, who have the full range of technical, policy and legal expertise to make these determinations.

1. Summary Of Site Groundwater Management Strategy

The groundwater management strategy at the RMKM Site was adopted in its present form in approximately 2006 after extensive planning with Regional Board Staff. This strategy was primarily implemented through the Regional Board's sequential adoption of permits and approvals, including: (1) issuance (in 2007) and reissuance (in 2013) of an NPDES permit for seasonal discharges from Skyrocket Pit Lake to Littlejohns Creek (WDR No. R5-2007-162, renewed in 2013 as WDR No. R5-2013-0071); (2) a Time Schedule Order (TSO R5-2006-0900); and (3) the current Closure WDRs (WDR No. R5-2008-021). Minor elements of the strategy were implemented through regulatory correspondence or agreements.

The objectives of the groundwater management strategy are to:

- Prevent the overtopping of the dam at Skyrocket Pit Lake, which would cause an unauthorized surface discharge from a Waste Management Unit to Littlejohns Creek;
- Control surface seepage from the toes of the West Overburden Disposal Site ("ODS"), Gold Knoll ODS, and the Flotations Tailing Reservoir ("FTR");
- Eliminate land application on the ODS surfaces as a means of disposing of the ODS seepage; and
- Minimize the water level in Skyrocket Pit Lake to prevent alleged groundwater seepage from the lake.

The following sections will address different aspects of the groundwater management strategy that have been critiqued by the Izzo Comments.

2. The Skyrocket Pit Lake Water Balance Model Demonstrates That The Lake Is Not In Danger Of Overtopping.

All available evidence indicates that Skyrocket Pit Lake ("SPL") is in a state of equilibrium and has been for at least ten years. Although Mr. Izzo asserts that the SPL water level is too high and he refers vaguely and ominously to "water balance" issues for SPL, the water level in SPL has behaved as predicted by the water balance model.

Indeed, when the Regional Board mining staff (of which Mr. Izzo was a part) made similar assertions in 2003-04 in connection with Meridian's appeal to the State Board, the State Board technical staff disagreed with these contentions. This topic was addressed in a Technical Report prepared in March 2004 by the State Board Division of Water Quality relating to the RMKM Site in advance of the State Board's consideration of the issues that led to the 2004 State

Board Order ("State Board Technical Report," Appendix, Exhibit "2.") The report reached the following conclusions on this subject:

> Consultants for the Discharger postulate that the pit lake has reached equilibrium and estimate that a rain season of 70 inches, unheard of during recorded history of this area, would be necessary to overtop the spillway. In its response to the Petition, the CVRWQCB states: "Furthermore, the lake level in Skyrocket Pit has risen higher than historic groundwater levels (due to construction of the dam) to a level that has created a groundwater mound." *However, based on groundwater elevations being lower prior to the Discharger's mining activities than the current lake level, it is our judgment that the Discharger is correct and that the pit lake is likely at or near equilibrium.* The Petitioner should monitor the pit lake elevation closely to confirm their postulation. *Id.*, at 10 (emphasis added).

Meridian developed a water balance model for SPL water levels approximately 15 years ago which has accurately predicted the levels of SPL under a variety of conditions. This model is depicted in the June 2012 schematic diagram marked as Exhibit "10" in the Appendix and is explained in further detail in Exhibits "11" and "12." In brief, the SPL model operates as follows:

> The water and mass balance model calculates the change in storage and in TDS concentration that occurs as a result of inflows and outflows, both natural and those intentionally performed to manage water at the RMK site. The inflows include ground water, surface runoff, direct rainfall, transfers from the managed springs (West ODS2, West ODS5, and Gold Knoll ODS), transfers from the FTR, and transfers from the North Pit (historic). The outflows include discharges under the NPDES permit, evaporation, and seepage to groundwater. Outflows such as it [sic] spillage (over the dam spillway) and transfers are allowed for in the model but have never occurred. The model calculates water levels in both pit lakes and the amount of water that can be discharged under various conditions based on Littlejohns Creek flow, water quality and the permit conditions. Exhibit "12," at 1.

The data generated over the last ten years conforms to the model projections and confirms that SPL is in equilibrium. The height of the SPL dam is 973 feet above mean sea level ("amsl"). During the last ten years, the SPL water level has varied between 962.1 and 969.1 feet amsl, depending on climatic conditions, annual discharges under the NPDES permit and other factors. The annual monitoring reports filed by Meridian pursuant to its Closure WDRs reflect

that the SPL water level was 966.92 feet amsl in December 2012 and 965.36 feet amsl in December 2013. Appendix, Exhibit "8," section 2.0, and Exhibit "9," section 3.3. Thus, if Mr. Izzo is asserting that the dam at SPL is likely to be overtopped because of the existing inputs and outputs, both the State Board Technical Report and the SPL water balance model disagree.[3]

Alternatively, Mr. Izzo's argument may be that SPL is not at as low a level as he would like to see it at, which he apparently believes leads to "discharges" of poor quality water from the Lake into surrounding surface waters. This topic will be addressed in the next two sections.

3. There Is No Evidence Of "Uncontrolled Discharges" To Littlejohns Creek.

The Closure WDRs and the NPDES Permit contain monitoring and reporting requirements to demonstrate the effectiveness of the groundwater management strategy. Specific monitoring and data evaluations were required as part of the Time Schedule Order, including installation of additional monitoring wells to determine if there are groundwater impacts caused by impoundment of water in SPL, as well as monitoring and evaluation of Littlejohns Creek flows to determine if the impoundment of SPL water had an effect on flow or water quality of the Creek.

However, before addressing the data generated by this monitoring program, it is instructive to review the opinion of the State Board technical staff in 2004 on this subject. The State Board Technical Report addressed the issue of such hypothesized discharges to Littlejohns Creek in connection with the appeal proceedings and stated that, in staff's opinion, any such impact "will not threaten surface water quality" and expressed concern that lowering pit water may result in pit water degradation. Appendix, Exhibit "2," at 10. The full report discussion of this issue was as follows:

> The CVRWQCB response goes on to state, "Subsequently this [*the increased groundwater elevation at the pit lake*] has caused seepage from the Pit resulting in an uncontrolled discharge to Littlejohns Creek [footnote omitted] in violation of WDRs." Because the water elevation in the Skyrocket Pit is presently slightly higher than in piezometer PZ4, located between the pit and the new Littlejohns Creek channel, pit water is likely migrating toward the creek. This will increase after any period of heavy precipitation during the wet season. *However, the top layer of*

[3] It is difficult to understand exactly what Mr. Izzo means by his assertions regarding the water balance model. He states: "Meridian has presented several models with extremely optimistic scenarios of amount of water entering Skyrocket Pit Lake and the amount leaving (water balance) and they all have failed." Izzo Letter, at 2-3. To the extent Mr. Izzo contends that the water balance model itself has failed or that the dam has been or is likely to be overtopped, he is certainly incorrect. Moreover, rather than being "optimistic," the predictions of the model have proven to be accurate over time.

> *water in the pit that may discharge into the adjacent surface water channels is of relatively good quality and will not threaten surface water quality, especially if discharge occurs during the wet season and there is high flow in the creek. Reducing the outflow from the pit may result in pit water degradation (i.e., an increase in salinity and other COCs) due to evaporation. Id.* (italics added at end).

In April 2007, SES submitted a detailed technical report presenting an evaluation of the site monitoring data ("April 2007 Report"), which is marked as Exhibit "3" in the Appendix. This report concludes that, while there is a hydraulic gradient away from SPL in the southeast quadrant (i.e., toward the area of the Turtle Pond), the impoundment of water in SPL has had no effect on the water quality, nor a discernable effect on water flow in Littlejohns Creek. Review of data collected since April 2007 indicates that these conclusions still hold true. With regard to effects on groundwater quality, the report notes that only PZ-4 (located on the east rim of the pit as depicted in Exhibit "3") indicated a change consistent with seepage from SPL. Conditions at this well have remained unchanged since the report was prepared and to date no other wells or surface water locations indicate effects by SPL water.

The Piper diagram included in the April 2007 Report includes data for SPL, surface water monitoring stations SWM-06 (located on Littlejohns Creek upstream of the FTR ODS and SPL) and SWM-10 (located on Littlejohns Creek downstream of SPL and all other mine facilities). The fact that the points for the surface water monitoring locations plot in basically the same location in the diagram but in a different location from SPL provide compelling evidence that the upwelling water in Littlejohns Creek is not water from SPL.

Both the April 2007 Report and current data support the position that there is no seepage from SPL to LJ Creek. Rather, once SPL filled with water, it no longer acted as a sink for surrounding groundwater (including good and poor quality groundwater) as it was during the operational period of the mine, and so some groundwater that once flowed into SPL's cone of depression now rises into the creek. This is most appropriately viewed as being a return to the pre-RMKM baseline condition where evidence supports there was poor-quality dry season flow in Littlejohns Creek. In March 2013, Meridian submitted a Technical Memorandum to Regional Board Staff presenting evidence of this pre-RMKM baseline condition. Appendix, Exhibit "6." Among other things, the technical memorandum concluded that "current dry weather flow and water quality conditions in Littlejohns Creek diversion are essentially the same as the pre-mining salt springs that fed Littlejohns Creek before mining occurred...." *Id.*, at 3.

4. There Is No Evidence Of Any Discharges From Mine Facilities To Love Pond Spring.

In September 2006, Regional Board Staff requested that Meridian conduct a geochemical finger-printing analysis of Love Pond Spring, located at the southwest toe of the FTR ODS. After undertaking this analysis, the April 2007 Report concludes that the source of the spring is

unknown, but it is not North Pit Lake, the FTR ODS, or the FTR (all located upgradient of the spring) nor is it SPL (which is located downgradient of the spring). Exhibit "3," at 8. Note that the Piper diagram and other elements of the analysis in the report demonstrate considerable heterogeneity of water quality within a small area (in the vicinity of Love Pond Spring), which is part of the reason that de-designation of beneficial uses within this area is appropriate.

There is no documentation or knowledge of a spring at the location of Love Pond Spring during mine operations. The spring was first identified in 2006, after Skyrocket and North Pit had filled with water and the cone of depression surrounding the lakes was removed. As indicated in the April 2007 Report and still true today, the groundwater gradient in the area around Love Pond Spring is toward SPL.

5. Recent Groundwater And Surface Water Quality Monitoring Data Confirm That Site Conditions Are Stable.

An extensive monitoring and reporting program has been implemented by Meridian at the RMKM Site as required by WDRs from before its mining activities to the present. Currently, the monitoring program consists of water quality and water level testing at the following locations:

- Thirty six groundwater monitoring wells,
- Four piezometers,
- Eighteen surface water monitoring locations,
- Four underdrain and leachate collection and removal system ("LCRS") sampling points, and
- Two pit lakes.

The monitoring and reporting program includes evaluation of the data and reporting of the results to the Regional Board in comprehensive reports on a semi-annual basis. Annual reports (which summarize the data from two semi-annual reporting periods) for 2012 and 2013 are provided as Exhibits "8" and "9" in the Appendix. The data evaluation includes statistical analysis pursuant to the requirements of Title 27. The purpose of the statistical evaluation is to detect changes and trends in surface and groundwater conditions (water levels and quality).

As indicated in Exhibits "8" and "9," the results are generally consistent with observations over the past few years. As concluded in the reports, water levels and flows are stable. The monitoring reports also indicate that there are a few locations which exceed statistical control limits for water quality and the concentrations are not increasing or decreasing with only two exceptions: mineral constituents (TDS, sulfate, chloride, etc.) are trending upward at GWM-34 at the south end of the site and at GWM-21 on the north side of the Gold Knoll ODS. Note that these two exceptions are consistent with the hydrogeologic conceptual model for the RMKM site and were considered in the development of the Proposed Amendment. The

concentrations appear to be stabilizing, as expected. Further monitoring will verify that conditions are not changing at these locations and that water quality and water level conditions are stable throughout the RMKM site.

6. Summary

In sum, there is no factual support for Mr. Izzo's views regarding the alleged failure of the current water management strategies at the RMKM Site. There is no evidence that "uncontrolled discharges" are occurring from SPL to the surrounding surface waters – in fact, it appears that the current conditions in the vicinity of SPL generally represent conditions that existed prior to mining by Meridian. Moreover, the source of the Love Pond Spring is not currently known, although Piper diagrams indicate that it is not from any of the mine-influenced water bodies. Thus, it is inaccurate for Mr. Izzo to assert that this spring is "an uncontrolled discharge of leachate to surface water." In fact, contrary to the assertions in the Izzo Comments, the current groundwater management strategy is working as designed and is an appropriate foundation for the Proposed Amendment.

C. There Has Not Been A Change In Site Ownership and Control.

Mr. Izzo claims, on page 7 of his letter, that Yamana Gold Inc. should be named as a responsible party on the Closure WDRs for the RMKM Site. At the outset, it should be noted that this contention is completely immaterial to the current Proposed Amendment proceedings because they involve the formulation of a Basin Plan Amendment for the RMKM Site, not the issuance of WDRs or the investigation of potentially responsible parties. Nonetheless, Meridian responds to these contentions through submittal of the February 24, 2014 letter of Adam Whitman, the President of Meridian Beartrack Company ("Whitman Letter"), submitted concurrently with this comment letter.

It is undisputed that both Meridian Beartrack Company and Meridian Gold Company are named as parties to the Closure Waste Discharge Requirements for the RMKM Site, Order No. R5-2008-0021 ("Closure WDRs"). Although Meridian Beartrack Company is the owner and operator of the RMKM Site, the State Board Order determined that it was appropriate to include Meridian Gold Company as a discharger on the Cease & Desist Order at issue in the State Board Order because, in the State Board's view, "the primary entity involved in mining operations and subsequent RMKM closure activities throughout the last decade operated under the name of Meridian Gold Company." Order, at 20. The State Board further stated that "the record includes extensive evidence that the present Meridian Gold Company has been directly involved in the operation of RMKM, …." *Id.* Based on this information, the State Board concluded that Meridian Gold Company "is responsible for complying with all appropriate mine closure and

cleanup requirements based on its own extensive and direct involvement in the operation of RMKM and subsequent mine closure activities,...." *Id*, at 21.[4]

Mr. Izzo asserts that there has been a "merger" of Meridian Gold Company with Yamana Gold Inc. that requires Yamana Gold Inc. be named as a responsible party. However, as set forth in the letter from Yamana Gold Inc. attached to the Whitman Letter, the two companies have not merged. Rather, as verified by Mr. Whitman, both Meridian Beartrack Co., incorporated in Montana, and Meridian Gold Company, incorporated in Delaware, remain separate companies.

Mr. Izzo also is mistaken when he asserts that Yamana Gold Inc. should be added as a responsible party to the Closure WDRs based on the "same justification" as explained for Meridian Gold Company in the State Board Order. Izzo Letter, at 7. Mr. Izzo has not presented any evidence that Yamana Gold Inc. has been directly involved in any aspect of the operation of the RMKM facility or in subsequent mine closure activities, which is the direct participatory basis on which the State Board found Meridian Gold Company to have responsibility. Furthermore, Meridian Beartrack Company has consistently provided all of the necessary resources for meeting its obligations to date. Accordingly, even if a change in owner/operator status was a material issue in these proceedings (which it is not), Mr. Izzo has failed to demonstrate a legal basis for joining Yamana Gold Inc. as a responsible party on the Closure WDRs.

III.

SPECIFIC RESPONSES TO IZZO COMMENT LETTER

Mr. Izzo summarizes his major comments on the Draft Staff Report in the Izzo letter. This section will respond to each of his seven comments and to his "Possible Solution" section. Our responses below to each of these comments hereby incorporates by reference all of our comments in the preceding portions of the letter as though set forth fully herein.

A. Comment #1: De-Designation Standard (Pages 1-2)

Mr. Izzo contends that de-designation of the MUN beneficial use in the Proposed Amendment can only occur in areas where TDS levels are less than 3,000 mg/L. This view is apparently predicated on his belief that such de-designation can only occur utilizing this numeric standard in State Board Resolution 88-63. He therefore disputes any de-designation that includes a more expansive area.

This contention has a faulty legal basis. As explained in the Draft Staff Report, the Regional Board's ability to de-designate these beneficial uses is not limited to the grounds set forth in Resolution 88-63 (*Sources of Drinking Water Policy*). Rather, it has discretion to apply other criteria using its best professional judgment based on the available facts. In this instance,

[4] Meridian and Meridian Gold Company contested these factual assertions and did not agree with the State Board's legal conclusion. However, the reasoning of the State Board determination is germane to the current discussion.

Regional Board Staff has appropriately concluded that, due to site-specific conditions, groundwater beneath waste management units does not warrant protection for the potential future beneficial uses that are identified in the existing Basin Plan, so it has added these areas to the de-designation. This is a proper exercise of agency discretion based on public policy and site-specific facts.

Moreover, the available data demonstrates that there are likely unidentified pockets of groundwater with TDS >3,000 mg/L; the information submitted by Meridian that is part of the administrative record for this Proposed Amendment proceeding demonstrates that the geology and water quality conditions are heterogeneous. Wells that have been installed to evaluate conditions have indicated both poor quality water in areas where it was expected to be good and good quality water in areas where it was expected to be poor. The Draft Staff Report uses these scientific facts appropriately to make the determination that there is a likelihood of unknown pockets of groundwater with TDS >3,000 mg/L.

Regarding the groundwater conditions under the FTR, the Draft Staff Report is clear that the basis for including the FTR is that the approach of de-designating groundwater under the WMUs ". . . is consistent with the Title 27 requirements that would prohibit any activities on WMUs that might impair their physical integrity (such as drilling a water supply well)." Draft Staff Report, Section 2.1.2.4. Note also that wells FPZ-3, -4, -5, and -6 (mentioned in this comment by Mr. Izzo) are outside and cross-gradient of the de-designation area shown in Figure II-2 of the Draft Staff Report. Note also that only two of the eighteen wells cited in this comment from Mr. Izzo that are located in the northern half of the Site are within the proposed de-designation area (GWM-02 and GWM-30). The range of TDS concentrations in the data record for GWM-2 and GWM-30 are 240-2,040 mg/L and 270-4,480, respectively, which reflects an exceptionally broad and varied set of TDS water conditions.

B. Comment #2: Mining Related Impacts (Page 2)

The Izzo Comments assert that the Draft Staff Report should provide a better definition of "mining related water quality impacts" as compared with "natural high TDS." However, this contention reflects a lack of understanding or a disregard for the extensive work that has been done over the last two decades to parse these impacts and which lead, in part, to the State Board Order and the State Board Technical Report.

Meridian has been working with the Regional Board for years to distinguish natural poor water quality conditions from impacts due to mining (that have been caused by changes to hydrogeologic conditions as well as by seepage from the WMUs). The April 2007 Report is an example of such an evaluation; other examples include Exhibits "4" and "5" and the Annual Monitoring Reports (Exhibits "8" and "9"). An Engineering Feasibility Study (TRC, October 1997)[5] and an Addendum to that document (TRC, July 1999)[6] are among the earlier

[5] *Draft Engineering Feasibility Study*, TRC, October 1997.
[6] *Engineering Feasibility Study Addendum*, TRC, July 1999.

comprehensive examples of water quality evaluations to distinguish natural water quality conditions from those that occurred as a result of mining.

Thus, the methods and guidance suggested by Mr. Izzo have already been used extensively for the RMKM Site, and he personally presented some of them before the State Board prior to issuance of the State Board Order. Although there has been mixed success with applying these approaches because it is difficult to categorize the cause of groundwater quality changes at the RMKM Site, there is nothing to be gained by performing these studies again.

Typical of mine sites, the constituents that can potentially be released from mine waste are the same as the constituents that are naturally-occurring in surface and groundwater in the area because the mine waste is material removed from the ground and placed in nearby piles. There are some mining situations where there are unique chemicals, such as cyanide, that are in the waste and can be used to fingerprint mine waste impacts, but this is not the case at the RMKM Site due to the nature of mineral processing (all cyanide-containing wastes were placed in a smaller, specific WMU, which has been successfully closed according to prescriptive Title 27 requirements after treating the cyanide).[7] In other cases, a particular mineral phase is concentrated that can cause generation of acids that leach into surface and groundwater. [8] Accordingly, there is no chemical signature that could be utilized at the RMKM Site to further parse the mining impacts from naturally occurring conditions.

Regardless, making the distinction between natural and mine-related impacts to facilitate decision-making with regard to groundwater remediation is not productive because, as the State Board Technical Report observed, "meaningful data analysis between groundwater wells is very limited and only gross judgments should be made between wells." Exhibit "2," at 8. Moreover, this research effort would not be productive or in conformance with the State Board Order analysis that such groundwater remediation would be essentially futile because of the natural water quality conditions and may even exacerbate the existing conditions.

C. Comment #3: De-Designation Basis (Page 2)

Mr. Izzo contends that the Draft Staff Report must be rewritten to "clearly present that the de-designation [is] based on the location of the mining waste units not monitoring data." Izzo Letter, at 2. In his view, the de-designation outside of areas with TDS greater than 3,000

---

[7] As part of numerous evaluations performed from the mid-1990s to the mid-2000s, Meridian and the Regional Board investigated the possibility that elevated concentrations of sulfate might serve as a marker or indicator of mine-related impacts. However, upon investigation, Meridian determined that sulfate is not an appropriate marker because it is ubiquitous at the RMKM Site and was naturally elevated in baseline (pre-1989) groundwater and surface water conditions. Given the huge variability in groundwater conditions at the RMKM Site noted by both the State Board and its technical staff in 2004, and the lack of comprehensive pre-mining data, sulfate does not provide a reliable scientific basis for evaluating the extent of mine-related impacts. Meridian can certainly provide the Regional Board with more information regarding this topic upon request.

[8] It is noteworthy that the RMKM Site does not have acid mine drainage issues that are present at some other mines. The State Board Order noted that the discharges from the RMKM facilities "do not pose an acid drainage problem...." Exhibit "1," at 15.

mg/L is not based on any data. However, the Draft Staff Report is clear that the de-designation area is based on both site data that show natural poor water quality (i.e., areas with TDS>3,000 mg/L), and the locations of mining waste management units where beneficial use of the underlying water would not be permitted as a result of Title 27 regulations.

D. Comment #4: Alleged Lack of Site Containment (Pages 2-3)

Mr. Izzo contends that there is a lack of containment of RMKM groundwater, in part because the water level in SPL has not been lowered sufficiently. He makes the "uncontrolled discharge" allegations discussed above and contends that the Draft Staff Report must address both surface and groundwater. However, for the reasons summarized below, these contentions are not appropriate.

Technical analyses, including water and mass balance calculations, have been used to evaluate proposed closure measures at the RMKM site since the mine was designed. These approaches are standard analytical tools used in the engineering profession; site-specific data such as flows, catchment areas, infiltration rates, runoff rates, precipitation, evapotranspiration rates, and water quality are used to calculate the balance of inflows, outflows, and storage changes.

A detailed water and mass balance model was created for the groundwater management planning at the RMKM Site. The water balance model has been calibrated with water and salt levels in SPL, the main waterbody at the site. The calibration with the measured water and salt levels in SPL is excellent as shown in the technical report enclosed as Exhibit "11" in the Appendix. As shown in this Exhibit, the water balance model calculates the SPL water elevation typically to within less than one foot of the measured elevation.

The calibrated water balance model has been used with actual and projected flows for different scenarios to determine the feasibility and effectiveness of alternative water management plans. An example of such an analysis is provided by Exhibit "12" in the Appendix, which evaluates alternative discharge conditions for the NPDES permit and alternative water management plans.

As there is no technical support for the assertions made in the Izzo Comments, it is unclear what the basis is for his comment regarding the "extremely optimistic scenarios" in the models. In fact, the water level and TDS concentrations have tracked very well over the past few years with projections that were used as the basis for designing and evaluating the current groundwater management strategy.

With regard to the Izzo comments on a lack of containment, and creek water being impacted by seepage from the SPL, the April 2007 Report demonstrates there is no evidence of SPL water affecting the creek as described above. Exhibit "3." Subsequent similar evaluations

have been submitted as required by WDRs and the NPDES Permit[9] which come to the same conclusion: there is no evidence of impacts in Littlejohns Creek due to seepage of water from SPL.

Meridian has also submitted a technical memorandum that presents evidence that the current surface water and flow conditions at RMK are a return to baseline, pre-RMK conditions where poor quality spring flows (that dried up during mining because of pit-dewatering) report to Littlejohns Creek since they are no longer captured by dewatering in Skyrocket Pit as described in the technical memorandum marked as Exhibit "6." Further, the baseline conditions of poor-quality spring flows in the surface water is the condition which existed when the current beneficial uses of surface water in this basin were designated.

E. Comment #5: Site Conditions (Pages 3-5)

Mr. Izzo makes a series of assertions in this comment regarding the alleged lack of compliance of the Proposed Amendment with the State Board Order. These are based on his unsupported views, rebutted in Section II(B) above, that the water management strategy at the RMKM Site is not working and that a variety of water issues are occurring. Although these issues have been addressed above, we will respond to a few of these specific allegations here.

The numerous Meridian evaluations identified in the response to Comment #4 above demonstrate that, while the water level of SPL is higher than the groundwater levels at the southern end of SPL, there is only limited evidence of migration of water out of SPL into groundwater and no evidence of SPL water affecting the water quality or flow of Littlejohns Creek. The State Board Technical Report disagreed with these concerns expressed by Regional Board Staff in 2004 regarding adverse impacts of potential migrating waters as follows: "However, the top layer of water in the pit that may discharge into the adjacent surface water channels is of relatively good quality and will not threaten surface water quality, especially if the discharge occurs during the wet season and there is high flow in the creek. Reducing the outflow from the pit may result in pit water degradation (i.e., an increase in salinity and other COCs) due to evaporation." Exhibit "2," at 10. Thus, whether or not there currently is a mounding condition, there are no known adverse impacts to surface waters that can be attributed to migrations from SPL. Rather, the groundwater management system for the RMKM Site (management of the seepage and leachate from the WMUs as well as excess water in Skyrocket Pit Lake as permitted by WDRs and the NPDES Permit) is effective at controlling mine-impacted water, as evidenced by the stabilized conditions that are presented in the annual monitoring reports.

[9] Skyrocket Pit Lake Containment Evaluation; Royal Mountain King Mine Closure. Strategic Engineering and Science, July 2011; required by Condition 29 of Order No. R5-2008-0021. See also, Annual Skyrocket Pit Lake Water Level and Water Quality Assessment; submitted annually in May since 2009 as required by the NPDES Permit.

Lastly, as documented in the April 2007 Report, there is no evidence of discharges of Skyrocket Pit Lake water through seeps and springs to surface water. Since the Izzo Comments fail to provide any technical support for these assertions, it is difficult to understand the basis for the comment.

F. Comment #6: Alleged Violation of State Board Resolution 68-16 (Page 5)

Mr. Izzo contends that adoption of the Proposed Amendment would violate State Board Resolution 68-16, the State Board's *Antidegradation Policy*, which provides constraints regarding the degradation of high-quality waters. This comment is based on Mr. Izzo's belief that there are discharges of mining waste at springs which are degrading surface water and on his personal policy position that geographic areas with TDS concentrations below 3,000 mg/L cannot be de-designated for the MUN beneficial use.

Sections 5.1.1 and 5.2.2 of the Draft Staff Report completely and accurately address these concerns. In brief, the Proposed Amendment does not authorize or constitute the degradation of high-quality waters. Rather, as explicitly authorized by law, it de-designates certain beneficial uses of groundwater in identified geographic areas where such beneficial use designations are not appropriate. These waters do not constitute "high-quality waters" as defined by the Policy.

Mr. Izzo's comment is also incorrect because it rests on a faulty factual and policy basis. He continues to make assertions regarding the alleged discharge of mining waste from springs which have been addressed in the comments above, including in Section II(B) herein. His constricted interpretation regarding the circumstances under which the MUN use can be de-designated represents his personal perspective on the applicability of the *Sources of Drinking Water Policy* and is not in conformance with applicable law for the reasons described above. Accordingly, even if there were an antidegradation limitation on de-designation of these particular beneficial uses in these circumstances (which there is not), there is no factual basis for Mr. Izzo's assertions that such water degradation would occur from these groundwater management practices.

G. Comment #7: Engineered Wetlands (Pages 5-6)

Mr. Izzo asserts that Meridian did not comply with the State Board Order requirements relating to the consideration of the development of expanded and enhanced wetlands for the RMKM Site. He contends that Meridian did not prepare or submit a plan to the Regional Board for such wetlands, apart from providing "some results from a bench scale study and pilot study." However, for the reasons described below, these contentions are not accurate.

It is undisputed that, in November 2004, Meridian submitted detailed technical reports presenting a plan for site closure that was based on use of enhanced wetlands (referred to as

Natural Treatment Systems or "NTSs").[10] Following review of the technical reports by Regional Board Staff (including Mr. Izzo) and also a subsequent application for an NPDES Permit for the NTSs,[11] it became evident that there were several regulatory issues that would be difficult to overcome for the implementation of a closure plan involving wetlands and riparian systems. Among other things, Regional Board Staff determined that any discharge from the wetland systems that were capturing impounded wastewater would need to be covered by an NPDES permit that would contain strict discharge limits. When Meridian followed up with an NPDES permit application based on the NTSs, it was rejected by Regional Board Staff for not being in compliance with regulatory requirements. It thus became evident to both Regional Board Staff and Meridian that this approach was not a path forward that would work given the unique issues at the RMKM Site.

Mr. Izzo's contention that "[n]either the Regional Board staff or Meridian has complied with the SWRCB Order" regarding the engineered wetlands is wrong. As explained in Section II(A) above, the State Board Order required Meridian to submit an engineered wetlands plan (which it did) and required the Regional Board Staff to consider the plan (which they did), but it did not require the Regional Board to implement the plan or Meridian to insist on the plan, no matter what the circumstances were. Although it is unfortunate that the plan did not prove feasible from a regulatory viewpoint, neither party "violated" any requirement in the State Board Order regarding this plan.

In the meantime, Meridian had initiated pilot-scale testing of NTSs and decided to continue the tests even after it was mutually determined to be impractical to implement this system for an approved site closure. The pilot tests were designed and performed under the supervision of a California Registered Geologist with the objective of establishing design and performance parameters for passive treatment systems (NTSs) to reduce TDS and dissolved metals concentrations in the seepage from the ODSs. The tests were based on bench scale studies performed earlier because the bench testing looked promising for metals. Appendix, Exhibits "13." The results of the pilot testing and the earlier bench testing was provided to RWQCB Staff (including Mr. Izzo) in March 2013. Appendix, Exhibit "14." Relevant results of the pilot testing are summarized in Exhibit "14," and show that, at best, engineered wetlands could reduce TDS concentrations (as represented by Electrical Conductivity in Exhibit "15") by only 20%, which is insufficient to meet water quality objectives for the designated beneficial uses in the receiving water.

In sum, both Meridian and Regional Board Staff complied with the State Board Order requirements relating to engineered wetlands, but regulatory hurdles and anticipated problems in meeting NPDES discharge limits were too difficult to overcome. The pilot tests on potential

---

[10] Supplemental Closure Plan – Prepared in Response to SWRCB Order WQO-2004-0007. TRC, Inc. November 2004; Technical Memorandum: Calculation of TDS Loadings. TRC, Inc., November 2004; and Report of Waste Discharge for the Supplemental Closure Plan (RWD). TRC, Inc. November 2004.

[11] National Pollutant Discharge Elimination System Permit Application, Royal Mountain King Mine, Calaveras County. SES, Inc. and TRC, Inc., July 2005.

systems identified above conclusively demonstrated that engineered wetlands are not an effective treatment method to reduce TDS in RMKM Site waters to levels that could be authorized for discharges in an NPDES permit.

H. Comment Regarding Possible Solution (Pages 6-7)

Mr. Izzo proposes an alternative scenario for achieving closure of the RMKM Site waste management units in conformance with his personal view of what the State Board Order required. In brief, the "solution" involves four steps: (1) Meridian submits a plan to the Regional Board for development of engineered wetlands; (2) the Regional Board reviews and comments on the Plan; (3) Meridian submits a Report of Waste Discharge that would include a final wetland construction plan for wetlands that would discharge directly to Littlejohns Creek, a proposed closure plan, and a plan to transform Skyrocket Pit Lake into a "groundwater sink;" and (4) Regional Board revision of the Closure WDRs.

Mr. Izzo supports his approach with a copy of the first page of an email exchange that he apparently had with an individual at Roux Associates (a private consulting firm) while he was a Regional Board employee that he contends demonstrates that the constituents of concerns "could be treated to the appropriate water quality objective." Mr. Izzo fails to provide a full copy of the email exchange with Roux Associates – rather, he only discloses the first page of the email that he believes supports his position. He also does not explain how he obtained this email after he left the Regional Board and does not state whether he had conversations or email exchanges with any other consultants, and what the results of those communications were.

There are several fundamental problems with this proposed approach. First, Mr. Izzo is attempting to resurrect an engineered wetlands plan that was evaluated as directed by the State Board Order and which was mutually determined by the Regional Board and Meridian not to be an effective approach for addressing the TDS issues at the RMKM Site. Not only would this approach have required that Meridian obtain an NPDES permit for each of the discharges from the engineered wetlands, but the wetlands would not be effective in sufficiently removing TDS to levels below water quality objectives in Littlejohns Creek. Indeed, to be effective in implementing Mr. Izzo's proposed solution, the wetlands would have to perform 500% better than those in the pilot test, which is completely unrealistic. In short, this approach would simply rewind the clock and repeat a process that was followed and determined to be unacceptable more than five years ago.

The second problem with this approach is that there is no technical support for the statement that the bench scale and pilot scale testing performed by Meridian showed "extreme promise." As shown in Exhibit "15" and discussed in the Response to Comment 7 above, the results of testing indicate that engineered wetlands is not an effective method to reduce TDS at the RMKM Site. There were significant regulatory issues that would be difficult to overcome in implementation of a closure plan based on the use of engineered wetlands.

Third, the reference to the Roux email fails to provide any credible evidence in support of the proposed Izzo solution. Mr. Izzo does not disclose what data or performance requirements he provided to Roux Associates and their quick email response that the water could be treated with engineered wetlands appears to be based on a cursory review. There is certainly no scientifically credible data to support this position. Note also that the compost and iron amendments mentioned in the Roux email were among the substrates that were pilot-tested in the site-specific tests at the RMKM Site.

A fourth issue with this approach is that, contrary to the State Board Order's directives, it would not result in a reclassification of the waste management unit wastes from Group B to Group C. In his comment, Mr. Izzo states that "a characterization of the discharge from wetlands would be done to determine if discharge would be classified as Group C mining waste per title 27 Section 22480." As described above, treatment using wetlands does not significantly reduce the level of TDS, so discharges from wetlands treatment system would not meet water quality objectives for the receiving body and the water being treated could not be classified as a Group C waste. Further, the Proposed Amendment for groundwater beneficial uses would still appear to be necessary for reclassification of the wastes. Thus, the validity of Mr. Izzo's possible solution is questionable as it does not achieve the directives of the State Board Order.

In sum, Mr. Izzo's proposed scenario shows no realistic promise for achieving the objectives for the RMKM Site set forth in the State Board Order, would force Meridian and Regional Board Staff to repeat a technical exercise that they already thoroughly performed many years ago, and is based on flimsy email "evidence" that does not provide a credible technical foundation for these issues at this site. Wetlands treatment has already been evaluated and discarded because it fails to meet the performance requirements and regulatory directives for the RMKM Site.

IV.

RESPONSES TO DRAFT STAFF REPORT COMMENTS

Mr. Izzo has made approximately 50 separate annotation comments to the Draft Staff Report covering a variety of factual, policy and legal issues. Many of the comments are intemperate in tone and accuse Regional Board Staff and/or Meridian of violating the law, without any true factual or legal support. Rather than respond to each comment individually, Meridian has divided the Izzo Comments on the Draft Staff Report into four general types that it will respond to as a group. The identified page locations in the section titles herein refer to the pages in the Draft Staff Report that have the Izzo comments on that subject. The Meridian comments in sections I, II and III herein are specifically incorporated by reference into each of the comments below.

A. The State Board Order Did Not Establish Any Remedy Preference Or Require That Any Particular Regulatory Regime Be Adopted By The Regional Board (Executive Summary and Pages 10, 14 and 16).

In his Draft Staff Report comments, Mr. Izzo makes several further contentions regarding the meaning of the State Board Order. First, he asserts that the State Board expressed a "preferred alternative" in this Order regarding the path forward for regulatory closure. Second, he questions whether this Order requires the entire site to be de-designated and implies that, since it is not occurring here, the de-designation is not appropriate. Third, he states that the Proposed Amendment "reliefs [sic] responsible parties from cleaning up the environmental damage they have done…" For the reasons below, none of these contentions is accurate.

As explained in section II(A) above, the State Board Order encouraged the Regional Board to consider a variety of mechanisms for achieving closure of the RMKM Site and did not limit the available options to those suggested for consideration. In several of his Draft Staff Report annotations, Mr. Izzo asserts that the State Board in fact had a "preferred alternative" of engineered wetlands. However, in fact, the State Board did not identify any preferred alternative. Although the State Board did discuss the potential feasibility of the wetlands concept and did order Meridian to provide a plan embodying this alternative to the Regional Board, it did not direct the Regional Board to accept the plan and did not elevate this potential alternative above others. Accordingly, the fact that the Proposed Amendment does not include an engineered wetlands approach does not mean that it is not compliant with the State Board Order.

Second, the State Board Order does not include any definitive statement regarding the physical extent of a de-designation decision. Rather, the Order recites the alternative approach raised by Meridian on this topic, cites some of the legal authority that could support a de-designation and states that such an amendment could be helpful here in reclassifying the overburden disposal sites as Group C mining wastes. Appendix, Exhibit "1," at 16-17. Rather than prescribing this approach and specifying a potential de-designation area, the State Board recommended consideration of this approach. Accordingly, the geographic extent of the proposed de-designation here is fully compliant with the State Board Order requirements.

Third, Mr. Izzo misunderstands the State Board Order when he states that the Proposed Amendment is inconsistent with the Order because it relieves Meridian from "cleaning up the environmental damage they have done." Meridian has spent tens of millions of dollars over two decades in performing technical studies required by the Regional Board and in reclaiming the RMKM Site. Site conditions have stabilized and it is ready for closure. In its Order, the State Board expressly stated that "a groundwater cleanup program would be extremely expensive, provide limited benefits, and could potentially aggravate groundwater conditions at some locations." *Id.*, at 17. Among other things, the Board noted that "[r]emoving salt from the underlying groundwater could require Petitioners to pump and treat the extracted water with reverse osmosis, an expensive, energy-intensive remedial measure that would generate a waste

brine that may be three to ten times saltier than the extracted groundwater" and which would then "have to be disposed of without adversely affecting water quality." *Id.*

The State Board Technical Report came to the same conclusion. It stated: "In this case, not only are prescriptive closure requirements extremely expensive, they are not likely to provide substantial benefit to water quality. The same can be said of groundwater cleanup – not only would it be extremely expensive, but it may exacerbate pollution." Exhibit "2," at 3. Further, "pumping groundwater from areas impacted by the Discharger would likely exacerbate TDS pollution, thereby rendering complete groundwater cleanup technologically infeasible." *Id.*

In sum, Mr. Izzo's real concerns appear to be with the State Board's interpretation and application of the regulatory requirements and policies to the RMKM Site. Although he cloaks his assertions in the context of enforcing the requirements of the State Board Order, the interpretations he urges of the Order's requirements appear to be his personal views of what the Order should mean and what remedial actions he believes should be undertaken. Thus, his statement about Meridian being unjustly relieved from cleaning up the RMKM Site is essentially a reflection of his view that a groundwater cleanup should be required in spite of the analyses of both the State Board and its technical staff that such a cleanup will not improve water quality, will likely exacerbate pollution and is not the best remedy available under law.

B. The Regional Board And State Board Have Discretion To De-Designate The MUN Beneficial Use When TDS Levels Are Less Than 3,000 Mg/L (Executive Summary and Pages 1, 11, 13, 15, 16 and 19).

In Mr. Izzo's view, any de-designation of groundwater for the MUN beneficial use must be limited to geographic areas on site that have recent data showing that they exceed 3,000 mg/L for TDS. He urges that this standard contained in Resolution 88-63 is the sole criterion that the Regional Board can utilize for de-designation of this beneficial use.

Mr. Izzo does not appreciate the discretion that is provided to the Regional Board and State Board in making de-designation decisions. In fact, Resolution 88-63 contains three separate and express bases for MUN de-designation and there are many policy, regulatory and other provisions that authorize de-designation of this beneficial use in other circumstances.

In this case, the Regional Board has provided two additional technical and policy rationales for a broader de-designation. First, the Draft Staff Report (at 15) appropriately points out that "title 27 requirements direct that no land uses are to be permitted on WMUs that might impair their physical integrity," which "will practically exclude any well installation beneath the WMUs." Given this regulatory requirement, it is not reasonably foreseeable that any wells would be drilled under these units. Second, the Draft Staff Report points out that groundwater quality on this site is variable and that there are likely pockets of poor quality groundwater in areas that have not been definitively delineated. *Id.* Accordingly, the Report recommends a de-designation that includes these areas.

The State Board and its technical staff noted the variability of RMKM groundwater in connection with the 2004 appeal proceedings. The State Board concluded that "[a]lthough discharges from RMKM facilities have negatively affected groundwater at some locations, groundwater quality was highly variable and often poor under natural conditions." Exhibit "1," at 4. In addition, evidence shows that "even in areas of good quality groundwater upgradient of mine operations, water quality has quickly deteriorated when water with elevated TDS levels is drawn into a well under pumping conditions." *Id.* The State Board Technical Report noted the complicated geology of the RMKM Site and reiterates the fact that good quality groundwater can quickly deteriorate under pumping conditions. Exhibit "2," at 6 and 8. For all of these reasons, even in site areas where there is no site data or where a well at a certain depth may show groundwater quality better than 3,000 mg/L for TDS, that area can in the professional judgment of the Regional Board qualify for de-designation under this standard.

In an annotation on page 15 of the Draft Staff Report, Mr. Izzo contends that the existence of poor quality water pockets "is conjecture without much support by the data that does exist." However, this contention is inaccurate. Due to the known heterogeneity of groundwater at the RMKM Site, it is conjecture to assert that they do not exist. Accordingly, this Draft Staff Report language should be retained.

C. The Draft Staff Report Findings Relating To The Lack Of A Historic Crop Growing Use And The Unsustainability Of Such Use On Site Are Supported By Available Evidence (Pages 12 and 17).

The Environmental Impact Report/Environmental Assessment ("EIR") for the RMKM project[12] describes the land use prior to the RMKM project as follows:

> Intermittent mining, exploration and prospecting activities have shared the use of the project properties with cattle and sheep grazing. Substantial acreages in Salt Spring Valley were formerly used for raising grain, and small portions are still planted for forage crops. Present uses are limited to intermittent mineral exploration and cattle grazing.
>
> In the late 1960's, an attempt was made to subdivide and create a recreational and residential area on part of the present project area by the Danish Brotherhood of Stockton. This project was ill-suited to the site and consequently failed.
>
> Land use in the region surrounding the project site is primarily that of grazing. Forage in the surrounding area is superior to that on the project site due to more favorable soil

[12] Royal Mountain King Project, Final Environmental Impact Report/Environmental Assessment, Sch. No.8702 0909, Geotechnical Research and Development, December 1987.

> conditions. The Diamond XX subdivision, established in 1968, lies adjacent to the project site to the south and southwest and consists of 198 20-acre parcels of which 51 have been improved with residences.

This description indicates that the RMKM project site has not been historically been considered suitable for farming.

In addition, the Calaveras County Water District ("CCWD") commissioned a study of potential areas of agricultural development in Calaveras County that has been marked as Exhibit "16" in the Appendix. The areas studied included the RMKM Site area, and the study concludes that much of the RMK property is unsuitable for development as irrigated land (i.e., no farming). This study was primarily based on soil conditions.

The EIR and the CCWD study provide additional support for the Draft Staff Report position that there is no historic or potential future use of the RMKM property for farming. Absent any evidence from Mr. Izzo regarding his apparent belief that there could be such a use, the conclusions presented in the Draft Staff Report are appropriate.

D. The Proposed Implementation Plan Elements In The Proposed Amendment Are Appropriate – In Contrast, The Izzo "Groundwater Sink" Concept is Neither Technically Appropriate Nor Practicable (Pages 24 and 26).

Mr. Izzo has critiqued the language of the Proposed Amendment that requires the implementation plan to "[m]aintain the lowest practicable water surface elevation in Skyrocket Pit Lake" because he thinks it should be more specific. He asserts that a specific level should be set that "establishes Skyrocket Pit Lake as a groundwater sink." Mr. Izzo does not provide any specificity regarding what water level would attain this goal.

There are several serious flaws with using the "groundwater sink" approach suggested by Mr. Izzo for management of RMKM Site groundwater. First, now that SPL is no longer being artificially maintained through pumping at an artificially low level, it appears to have returned to its historic levels, and this re-equalization and stabilization is beneficial for the RMKM Site. As Meridian has explained in its technical reports and in discussions with Regional Board Staff, the current conditions achieve the best balance of sustainability, water management practices and available resources.

The second flaw in the proposed groundwater sink approach is that it is not needed on site and in fact may worsen the quality of water in SPL that will be discharged under the NPDES permit. The State Board Technical Report explains how lowering SPL water levels "may result in pit water degradation" and explains why any seepage of water from SPL "will not threaten surface water quality." Exhibit "2," at 10. Since Mr. Izzo has not provided any evidence to support his contention that "uncontrolled discharges" of mine-impacted groundwater are occurring due to current SPL levels, there is also not a compelling reason to create an SPL

groundwater sink and there are countervailing reasons why such an approach would not promote the goals of the Proposed Amendment.

V.

CONCLUSION

Meridian requests that the Regional Board disregard the Izzo Comments in their entirety and adopt the Proposed Amendment as set forth in the Draft Staff Report. The Regional Board Staff has devoted many years of analysis and a great deal of time and resources over the last ten years after issuance of the State Board Order to resolving the unique RMKM Site issues. The Draft Staff Report reflects a reasonable, legally appropriate and environmentally protective approach to achieving closure of the waste management units at the RMKM Site. In contrast, the Izzo Comments apparently reflect the personal views of the commenter regarding the public policies and remedies that should apply to this site and they do not correspond to the requirements of the State Board Order, the findings of the State Board technical staff or the flexible considerations embedded in the applicable law.

Please let us know if we can provide any further information in response to the Izzo Comments.

Very truly yours,

Paul P. "Skip" Spaulding, III

PPS
Enclosures

cc: Patrick Pulupa, Esq., State Water Board Office of Chief Counsel
Mr. Adam Whitman, President, Meridian Beartrack Company
Dr. Tom Patterson, SLR International Corporation